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A REVISION OF THE GENUS STRAGANIA (BYTHOSCOPUS OF AUTHORS) IN AMERICA NORTH OF MEXICO
(Homoptera, Cicadellidae)

R. H. Beamer and Paul B. Lawson
Lawrence, Kansas.

Oman in 1936[1] assigned this group of North American leafhoppers to the genus **Bythoscopus** Germar, 1833, with **Bythoscopus lanio** (Linn.) as the type and placed **Batracomorpha** Lewis 1836, **Stragania** Stål 1862, **Gargaropsis** Fowler 1896 and **Eurinoscopus** Kirk. 1906 as synonyms.

Bythoscopus and **Batracomorpha** are both generically distinct from the species in America North of Mexico. They have the claval vein extending through the appendix, while in **Stragania** and in the forms considered in this paper, the claval vein fades out shortly after entering the appendix. The male genitalia of the latter are similar, and quite different from the type found in **Bythoscopus.** All the North American forms at present placed in **Bythoscopus** are, therefore, placed in **Stragania.**

Most of the species which are marked with red or brown are taken on the several species of the genus **Arctostaphylos,** commonly called manzanita. There are a number of species of manzanitas which are so closely related that they are very difficult to separate. We find a correspondingly difficult problem in separating a number of species of **Stragania.** This has led us to believe that either there is wide variation within a given species or else we have a number of incipient species which are not yet clearly differentiated.

In **Penestragania** the same difficulty is apparent in the species **robusta.** Here we do not have sufficient host plant evidence to do more than to say that there seems to be great variation in size, genitalia and other characters within the species.

Stragania Stål

Stragania Stål, Rio Jan. Hemip., 2, p. 49, 1862.

The following is a translation of the original Latin description: "With the head as seen from above, very short and blunt, on anterior part convex and with the front and vertex closely joined; with antennae inserted under the fold, extending from the lower front portion of the eyes, slanting transversely to the base of the clypeus; with apex of the scutellum not sharply produced, wider than long; tegmina pelucid, sparsely set with small hairs or setae, sometimes the apex with three short longitudinal veins (Subg. Nov. **Stragania** Stål, apparently related to **Zinnecae** Am. and Serv. in size. Perhaps it should be

[1] The University of Kansas Science Bulletin, Vol. 24, p. 353, 1936.

more correctly considered a distinct genus because of the structure of the tegmina and of the scutellum.)"

The chief characteristics of the genus are as follows: the crown or vertex is short and broad, often with sides almost parallel, covered with fine transverse striae, as are the pronotum and scutellum; elytra with fine setae; claval vein extending into appendix where it disappears; male plates usually hidden beneath very long last ventral segment, leaf-like or oval in general form, mesal margins curved, apices rounded; pygofer hooks short, stout, curved to blunt apices.

Type of the genus **Stragania ornatula** Stål 1862, designated by Oman 1936.

Certain species included in this revision of Stragania, namely **robusta apicalis** and **alabamensis**, exhibit characters in the male genitalia which we think make them worthy of subgeneric rank. We therefore propose the name **Penestragania** for these species.

Penestragania, new subgenus

Plates of males narrow at base, abruptly expanded and wide throughout most of their length, apical margin angularly truncated to sharp point at mesal margins which are always straight. Pygofer hooks sickle-shaped, about as long as free portion of styles.

Type of the subgenus **Pachyopsis robustus** Uhler.

Types of all new species described are in the Francis Huntington Snow Entomological Collections, University of Kansas, Lawrence, Kansas.

Key to the Species of Stragania

1. Females 2
   Males 22
2. General color pale green without dark marks except some occasional spotting in appendix and apical cells 3
   Either head, pronotum, scutellum or at least bases of elytra with some darker color 8
3. Length more than 5 mm. 4
   Length 5 mm. or less 5
4. Posterior margin of last ventral segment with large rectangular notch occupying more than middle third ..... **grandis** (Ball)
   Posterior margin of last ventral segment with U-shaped median notch occupying less than median third ..... **hyalina** n. sp.
5. Posterior margin of last ventral segment excavated 6
   Posterior margin of last ventral segment truncate or produced 7
6. Posterior margin of last ventral segment deeply excavated ..... **atra** (Bk.)
   Posterior margin of last ventral segment scarcely excavated ..... **robusta** (Uhler)
7. Last ventral segment practically truncate ..... **apicalis** (Osb. & Ball)
   Last ventral segment produced at middle ..... **alabamensis** (Bk.)

8. 6 mm. in length or over 9
Less than 6 mm. in length 13

9. Hairs on corium entirely white ..... **marginata** n. sp.
Hairs on corium not entirely white 10

10. Last ventral segment with posterior margin produced ..... **major** n. sp.
Last ventral segment with posterior margin almost truncate 11

11. Length 6.5 mm., hairs of elytra longer and thicker 12
Length 6 mm., hairs fewer and shorter, (Oregon) ..... **oregonensis** n. sp.

12. Elytra with many black hairs (Upper Lake, California) ..... **longistylata** n. sp.
Elytra with few black hairs (Santa Rosa, California) ..... **acutistylata** n. sp.

13. Last ventral segment with posterior margin slightly produced 14
Last ventral segment with posterior margin truncate or excavated 15

14. Length 5.5 mm.; only a very slight median notch ..... **magna** (Bk.)
Length 5 mm.; median notch U-shaped, almost as deep as broad ..... **gibbosa** n. sub. sp.

15. Greenish species, without red or pink coloring except for brown stripes bordering scutellum 16
Dorsum with at least some red or pink 17

16. Posterior margin of female last ventral segment concave, with median tooth ..... **franciscana** (Baker)
Posterior margin of female last ventral segment almost truncate ..... **bisignata** (Ball)

17. Median notch of female last ventral segment at least as long as distance from lateral edge of notch to lateral margin of segment 18
Median notch of female last ventral segment shorter than distance from lateral edge of notch to lateral margin of segment 21

18. Median notch of female last ventral segment very broad, almost reaching lateral margin of segment with a large rounded median tooth ..... **rufoscutellata** (Baker)
Median notch of female last ventral segment not almost reaching lateral margin of segment 19

19. Scutellum light 20
Scutellum with at least some dark at base ..... **turgida** n. sp.

20. Margins of vertex almost parallel ..... **alboscutellata** n. sp.
Vertex much longer at middle than next eyes ..... **californica** (Baker)

21. Elytra usually greenish, heavily pruinose ..... **pruinosa** n. sp.
Elytra usually pink, not heavily pruinose ..... **rubra** n. sp.

22. Dorsum without dark marks except small spots in appendix and apical cells 23
Dorsum with some dark color other than in appendix and apical cells 25

23. Apex of style bent into semicircle ..... **apicalis** (Osb. & Ball)
Apex of style not so strongly curved 24

24. Head much narrower than pronotum, setae on surface of elytra mostly white, separated by more than their own length; styles of male slightly curved out at tip ..... **alabamensis** (Bak.)
Head but little narrower than pronotum; setae black, nearer than their own length on surface of elytra ..... **robusta** (Uhler)

25. Aedeagus sharply constricted at or just beyond middle 26
Aedeagus not sharply constricted at or just beyond middle 33

26. Style in lateral view with sides almost parallel from near base to tapering apex 27
Style sharply contracting near basal third 29

27. Style beyond swelling at attachment sharply converging on outer third, larger, more robust (6 mm.) ..... **marginata** n. sp.
Style beyond swelling at attachment sharply converging on outer half; smaller, more slender (5.75 mm.) 28

28. More than 5 mm. long, slender, vertex almost twice as long at middle as next eyes ..... **acutistylata** n. sp.
About 5 mm. long, distinctly more robust, vertex almost parallel-sided ..... **gibbosa** n. sub. sp.

29. Apex of style distinctly curved in ..... **rubra** n. sp.
Apex of style straight or curved slightly out 30

30. Style very long, almost three times as long as aedeagus ..... **longistylata** n. sp.
Style shorter, never more than two and one third times as long as aedeagus 31

31. Head and thorax usually black; style usually widest near beginning of outer third ..... **oregonensis** n. sp.
Head and thorax usually not black 32

32. Large species, more than 5 mm. in length; both males and females usually reddish on dorsum ..... **major** n. sp.
Smaller, not more than 5 mm. in length; both sexes heavily pruinose ..... **pruinosa** n. sp.

33. Yellowish green with some darker markings 34
Brown or reddish species, vertex and prothorax often black 39

34. Head distinctly narrower than pronotum; species slender 35
Head almost as wide as pronotum 36

35. Length 4 mm. ..... **bisignata** (Ball)
Length 5 mm. ..... **hyalina** n. sp.

36. Vertex, pronotum and scutellum usually black 37
Vertex, pronotum and scutellum not usually black 38

37. Length 5 mm. or more, elytra usually with distinct black marks ..... **grandis,** Ball)
Length 4.5 mm.; elytra usually without black marks ..... **atra** (Bk.)

38. Scutellum brown, edge of elytra along scutellum narrowly em-browned ..... **rufoscutellata** (Bk.)

Scutellum stramineous, elytra along scutellum usually broadly embrowned ..... **franciscana** (Bk.)

39. Apical half of scutellum light, contrasting sharply with darker surroundings 40

Apical portion of scutellum mostly dark 41

40. Style contracted near base, widest on apical third in lateral view..... **alboscutellata** n. sp.

Style not contracted near base, gradually tapering to sharp apex on outer third ..... **californica** (Bk.)

41. Style not contracted near base; aedeagus very broad in lateral view.. **magna** (Bk.)

Style contracted near base in lateral view..... **turgida** n. sp.

1. Stragania (Penestragania) robusta (Uhler)

Pachyopsis robustus Uhler, P. R., Bull. U.S.G.S., 3, p. 467, 1877.

Resembling **S. ornatula** Stål but entirely green in color. Length male 3.75-4.5, female 4-5 mm.

Vertex short, broadly rounded, sides almost parallel; elytra sparsely set throughout with short, black setae.

Color: Pea green when collected, fading to stramineous with age, elytra often semihyaline.

Genitalia: Posterior margin of female last ventral segment slightly bisinuate, usually with small median protuberance. Pygofer of male narrow with a large sickle-shaped hook with prominently angled hump just before middle on outside of curve, tapered on outer fourth to sharp point; plates with mesal margin straight, bases rounded, widening on outer margin to apical fifth, then angularly truncated to sharp mesal point; styles small, scarcely larger than pygofer hooks, widest near middle in lateral view, gradually narrowing and curving dorsally to sharp apex.

Allotype, male, Star County, Texas, July 30, 1928, L. D. Beamer.

Many specimens at hand from Florida to California show considerable variation in size, shape of vertex, color and size of setae, and some variation in genitalia, but no stable characters have been found upon which to separate them if they are more than variations.

2. Stragania (Penestragania) alabamensis (Baker)

Macropsis alabamensis Baker, C. F., Psyche, p. 58, 1900.

Resembling **S. robusta** (Uhler) but setae on outer surface of elytra light instead of dark. Length 4-4.5 mm.

Head distinctly narrower than pronotum; vertex with margins usually almost parallel. Elytra almost hyaline, sparsely set with short light-colored setae.

Color: Greenish to stramineous with the mesal margin often darker green or fuscous usually with small fuscous spot at apex of clavus and the outer ends of apical cells.

Genitalia: Posterior margin of female last ventral segment produced on median two thirds, sometimes with a very small notch at apex. Pygofer of male with a large, sharp pointed, sickle-shaped hook; aedeagus enlarged on apical third in lateral view; style in ventral view thickest near middle, gradually tapering to sharp point which is slightly curved out near apex; plate as in **S. robusta,** hidden, inner margin straight.

Allotype male, Clarksville, Tenn. 4 parallotypes, same data. Specimens are at hand from Nebraska, Kansas, Tennessee and Alabama.

3. **Stragania (Penestragania) apicalis** (Osborn and Ball)

Macropsis apicalis Osborn, H., and Ball, E. D., Proc. Dav. Acad. Sci., p. 64, 1898.

Resembling **S. alabamensis** (Baker) but head much wider in relation to pronotum, setae many times more numerous on elytra, posterior margin of last ventral segment of female almost straight across and outer third of style of male bent into almost a half circle. Length 4.5-5 mm.

Head broad in relation to pronotum, margins almost parallel. Elytra closely set with fine white setae.

Color: Pale green in life, changing to stramineous in museum specimens, with small fuscous dashes in and about the appendix and apices of apical cells.

Genitalia: Posterior margin of last ventral segment of female almost truncate. Pygofer of male with large hook, slightly curved, thickened near middle, contracted on outer third to narrow, sharp point; plate, like that in **S. robusta,** hidden, mesal margin straight, apex sharp; style in ventral view widest near middle, narrowed and curved into almost a half circle on outer third.

Cotypes from honey locust in collection at Ames, Iowa. Common on honey locust in central states.

4. **Stragania marginata** n. sp.

Resembling **S. ornatula** Stål in that there is more or less red or black on dorsum but more closely related to **S. acutistylata** from which it may be distinguished by mostly white setae on corium of females and shorter male styles, with apex converging on its outer one third. Length 6 mm.

Vertex broadly rounded, distinctly longer at middle than next eyes. Elytra of male with setae about their own length apart, black in color, except on anterior half of clavi white; setae of female shorter, more closely set and white throughout.

Color: On dorsum male dark red; vertex, pronotum and scutellum often brownish to black; front usually darkest, extreme apex of scutellum lighter; appendix, narrow band at apex of elytra and more or less of venter fuscous. Female elytra light, (pale green occasionally pink) except narrow, pink or red border on elytra opposite scutellum and fuscous appendix; vertex, pronotum, scutellum, except tip, fuscous; margins of pronotum and scutellum, except tip, darker; front brownish, occasionally darker, remainder of venter light.

Genitalia: Posterior margin of last ventral segment of female slightly produced with a U-shaped median notch. Male style in dorsal view about twice as long as aedeagus, sides almost parallel to outer fourth, then converging to sharp apices; aedeagus in lateral view sharply narrowed on outer half, about half as wide as basal half.

Holotype male, allotype female, 14 male and 29 female paratypes, Warner Springs, Calif., July 28, 1938, R. H. Beamer. Taken mostly from **Arctostaphylos glandulosa** East and **glauca** Lind.

5. **Stragania acutistylata** n. sp.

Resembling **S. marginata** but female with some black setae, pronotum pink and scutellum light; male style shorter, sharply converging on outer half. Length male 5.75, female 6-6.25 mm.

Vertex broadly rounded, almost twice as long at middle as next eyes; elytra thickly covered with long, white setae, interspersed with black ones.

Color: Male usually red, although sometimes pale, with front usually black; vertex, pronotum, most of scutellum, mesal basal portion of clavi and narrow border at apices of elytra, including appendix, brown; female vertex, pronotum and scutellum ivory, posterior two thirds of pronotum often pink to reddish, tiny basal angles of scutellum brown; elytra light greenish, more or less pruinose with basal mesal half of clavi heavily embrowned, often entire mesal margin of clavi more or less pink and sometimes entire elytra pink; venter stramineous with front somewhat darker and legs often more or less tinged with green.

Genitalia: Posterior margin of last ventral segment of female slightly concave with a median, more or less rectangular notch, about twice as broad as deep. Male style in lateral view about twice as long as aedeagus, sides not contracted on basal half but converging on at least outer third to sharp point; aedeagus in lateral view very slightly narrowed on outer half, just barely distinctly narrower than basal half.

Holotype male, allotype female, 55 male and 34 female paratypes, Santa Rosa, Calif., August 16, 1938, R. H. Beamer and R. I. Sailer. These were mostly swept from **Arctostaphylos manzanita** Parry. Numerous other specimens which seem to be this species, from many localities in California, are at hand, swept from several other species of manzanita.

5a. **Stragania acutistylata gibbosa** n. sub. sp.

Resembles **S. acutistylata** in male genitalia but shorter and distinctly more robust, with the last ventral segment of female with posterior margin slightly produced with median rounded notch almost as deep as wide. Length 5 mm. Vertex only slightly longer at middle than next eyes. Length distinctly shorter in proportion to width, giving it a robust appearance.

Holotype male, allotype female, 7 male and 3 female paratypes, Lompoc, California, August 9, 1939, R. H. Beamer. Swept from **Arctostaphylos pechoensis viridissima** East.

6. **Stragania rubra** n. sp.

Resembling **S. oregonensis** but smaller and apex of style curving in in dorsal view. Length male 4.75, female 5 mm.

Vertex short, broadly rounding, slightly longer at middle than next eyes; elytra covered with fairly long, rather sparse, setae.

Color: Male usually red with front dark; vertex, pronotum and scutellum, except tip, brown, sometimes black; clavi about scutellum and narrow border at apices of elytra, including appendix, brown; venter often more or less brown; some setae on elytra white, others black. Female often red, sometimes lighter, underside pink; clavi bordering scutellum and appendix brown, setae on elytra mostly white, interspersed with some black ones.

Genitalia: Posterior margin of last ventral segment of female almost truncate with a shallow median excavation about half as wide as lobe either side. Male styles a little more than twice as long as aedeagus, in lateral view contracted about middle to two thirds width beyond, apices sharp, incurved; aedeagus with sides converging almost evenly from base to apex.

Holotype male, allotype female, 3 male and 1 female paratypes, Monterey, California, August 10, 1938, R. I. Sailer. One female paratype same place and date, R. H. Beamer.

7. **Stragania longistylata** n. sp.

Resembling **S. major** but more slender; style of male very long, about three times length of aedeagus. Length male 5 75, female 6.25 mm.

Vertex broadly rounded in female, more angular in male, almost twice as long at middle as next eyes. Elytra fairly thickly set with rather stout setae, part of them black and others white.

Color: Male red, with brown vertex, pronotum and scutellum, except tip occasionally lighter brown; venter usually stramineous with front brown to black. Female usually ivory to greenish, with vertex, pronotum and scutellum often more or less brownish or reddish; apex of scutellum lighter and mesal half of clavi brown to reddish. In some specimens the entire elytra are pink.

Genitalia: Posterior margin of last ventral segment of female almost truncate with a median U-shaped excavation about as deep as wide. Male style long, at least two and one half times as long as aedeagus; in ventral view, slightly contracted near middle and narrowed on outer third to sharp apex; aedeagus in lateral view rather slender, slightly but distinctly narrowed on outer half.

Holotype male, allotype female, 9 male and 9 female paratypes, Upper Lake, California, July 16, 1935, R. H. Beamer.

8. **Stragania oregonensis** n. sp.

Resembling **S. pruinosa** but larger; head, pronotum and scutellum of males usually black and most of setae on elytra of both sexes dark. Length male 5.5, female 6 mm.

Vertex very short, sides almost parallel; length at middle slightly longer for a short distance than next eyes. Elytra sparsely set with short, stout setae, mostly black in color except on basal half of clavi.

Color: Male brownish-red on elytra, black to brown on front, vertex, pronotum and scutellum, except apex of scutellum and small spot about ocelli which is ivory; venter more or less dark. Female ivory to semihyaline on elytra except portion of elytra bordering scutellum darker; front brownish to black; pronotum light brown, scutellum with three black spots on base, remainder light brown with apex ivory; venter stramineous, with abdomen tinged with green.

Genitalia: Posterior margin of last ventral segment of female truncate with a median shallow notch slightly wider than half distance from edge of notch to margin. Male style less than twice as long as aedeagus, unusually small for such a large species; in lateral view, strongly contracted on middle third, inner margin converging to form a sharp apex; aedeagus large, contracted on outer half to about two thirds basal width.

Holotype male, allotype female and 4 male paratypes, Hecita, Oregon, July 11, 1935, R. H. Beamer.

9. **Stragania major** n. sp.

Resembling **S. marginata** but larger and broader. Male style slightly contracted near middle and female with dark setae on elytra. Length male 6, female 6.25 mm.

Vertex broadly rounded, about one third longer at middle than next eyes. Elytra thickly set with long setae, about evenly distributed black and white except all white on basal half of clavi.

Color: Male red; front black; vertex, pronotum and scutellum, except apex, brown; appendix, except almost black spot at end of claval vein, brown. Venter mottled with brown. Female brownish-pink front and vertex, anterior part of pronotum and spots on scutellum ivory, venter stramineous, more or less marked with fuscous, especially on last ventral segments and pygofer.

Genitalia: Posterior margin of last ventral segment of female very slightly produced, with a U-shaped notch at middle. Male style slightly more than twice as long as aedeagus, contracted near middle in lateral view, tapering on outer third to sharp point; aedeagus large, in lateral view sharply narrowed on slightly more than outer third to less than half of basal width.

Holotype male, 5 male and 1 female paratypes, San Jacinto Mts., California, July 31, 1936, R. H. Beamer. Allotype female and 1 male and 1 female paratypes, same place and date, D. R. Lindsay. Other paratypes 3 males, same locality, July 30, 1938, R. H. Beamer; 1 male and 1 female, same locality, July 21, 1929, L. D. Anderson and R. H. Beamer. This is the largest species yet found on the manzanitas.

10. **Stragania pruinosa** n. sp.

Resembling **S. major** but definitely smaller, not more than 5 mm. in length, heavily pruinose. Length 4.25-5 mm.

Vertex broadly rounded, usually distinctly longer at middle than next eyes. Elytra thickly covered with setae, part of them black and part white; those on male somewhat coarser and more sparsely set than on female.

Color: Male red except vertex, pronotum, most of scutellum and clavi bordering scutellum, brown; appendix and apex of elytra, fumose; venter with front mostly black, brown around margin, last ventral segment red; remainder stramineous, more or less tinged with green. Female with front and vertex ivory; pronotum with front margin ivory, remainder pink; scutellum ivory; slightly more than inner half of clavi red; appendix and small apical border of elytra fumose, remainder of elytra slightly bluish-green; venter stramineous, more or less tinged with green.

Genitalia: Posterior margin of last ventral segment of female almost truncate with a flat bottomed notch about half as long as distance from edge of notch to margin of segment. Male style slightly more than twice as long as aedeagus, in lateral view strongly contracted near middle, much boarder till near apex, ventral margin converging to sharp point; aedeagus in lateral view sharply constricted on slightly more than outer half, about two thirds as wide as basal portion.

Holotype male, allotype female, 37 male and 30 female paratypes, Boulevard, California, July 28, 1938, R. H. Beamer. Numerous other specimens are at hand from Pine Valley, Quatay, Anza, and Idyllwild, Calif. This species was swept from **Arctostaphylos pungens** H. B. K.

11. **Stragania bisignata** (Ball)

Macropsis bisignatus Ball, E. D., Can. Ent., 34, p, 303, 1902.

Resembling **S. apicalis** (Osborn and Ball) externally but with dark markings on dorsum in both sexes. Length male 4-4.5 mm., female 4.5-5.5 mm.

Head distinctly narrower than pronotum especially in male; vertex broadly rounded in female, angular in male, distinctly longer at middle than next eyes. Elytra sparsely set with short setae, black, except white on basal portion of clavi.

Color: Greenish-yellow to semihyaline, with basal angles of scutellum, broad band bordering scutellum and reaching half length of clavi, appendix and apical cells, brown; venter stramineous, legs tinged with green.

Genitalia: Posterior margin of last ventral segment of female almost truncate with slightly produced lobe on either side of shallow median excavation. Male style scarcely twice as long as aedeagus in lateral view, broad at point of attachment, then sharply narrowed and nearly parallel-margined almost to acute apex; aedeagus in lateral view almost parallel-margined, slightly broadened just before upturned apex.

Types from Colorado in E. D. Ball Collection, United States National Museum, Washington, D.C. Specimens at hand from Colorado, Utah, Arizona

and New Mexico. A male and a female in the Ball Collection, United States National Museum, labeled Palmer Lake, Colo., 9-18-01, are here designated as lectoholotype and lectoallotype.

12. **Stragania rufoscutellata** (Baker)

Macropsis rufoscutellatus Baker, C. F., Psyche, 9, p. 58, 1900.

Superficially resembling **S. robusta** (Uhler) but with some dark marking on dorsum in both sexes. Length 4.5-5 mm.

Vertex very short, in female broadly rounded, scarcely longer at middle than next eyes; in male more angular and definitely slightly longer at middle than next eyes. Elytra fairly evenly set with setae about their own length apart, setae dark in color except on basal half of clavi, light.

Color: Usually bluish-green to semihyaline, except scutellum and adjoining clavi, brownish; in some specimens, vertex, anterior portion of pronotum and scutellum ivory.

Genitalia: Posterior margin of last ventral segment of female excavated from side to side with bottom of this excavation broadly but slightly produced. Male style about two and one fourth times as long as aedeagus, greatly widened at its connection with plate, almost parallel-sided to sharply pointed outer third, coarsely rastrate on apical fourth of ventral margin except extreme tip; aedeagus slightly enlarged at tip, ventral margin rounded off to meet almost straight dorsal margin at tip.

Baker types in U. S. National Museum. The above description from a homotype female from Palmer Lake, Colo. and a male from Nederland, Colo. Numerous specimens are at hand from Colorado, Wyoming, New Mexico, Utah and Arizona.

13. **Stragania franciscana** (Baker)

Macropsis franciscana Baker, C. F., Invert. Pac., 1, p. 12, 1903.

Resembling **S. rufoscutellata** (Baker) but scutellum usually ivory instead of brown and excavation in last ventral segment of female with a short, sharp tooth. Length male 4.5, female 4.75 mm.

Vertex short, broadly rounding, barely longer at middle than next eyes. Elytra with moderately long setae about their own length from each other, dark in color except on basal half of clavi.

Color: Ivory on vertex, pronotum and scutellum, more or less tinged with green, except on scutellum; elytra bluish-green to semihyaline. broadly embrowned on inner basal halves of clavi, usually a brown spot in base of appendix; venter stramineous, legs tinged with green.

Genitalia: Posterior margin of last ventral segment of female concave with a short, sharp, median tooth. Male style less than two and one half times as long as aedeagus, broad near attachment to plate, tapering at first rapidly for a short distance, then gradually to sharp out-curved apex; aedeagus gently tapered from base to apex.

Numerous specimens at hand from a great many localities in California.

14. **Stragania hyalina** n. sp.

Resembling **S. bisignata** (Ball) but larger, female without dark color on basal half of clavi and last ventral segment truncate instead of produced as in **bisignata**. Length male 5, female 5.75 mm.

Vertex short, broadly rounded, scarcely longer at middle than next eyes. Elytra rather sparsely set with short setae, black except on basal half of clavi where they are light.

Color: Vertex, pronotum and scutellum ivory, often tinged with green; elytra semihyaline except basal half of clavi, opaque white. In male appendix, apical cells and most of opaque area in clavi brown; in female only appendix and apical cells brown; venter stramineous, more or less tinged with green.

Genitalia: Posterior margin of last ventral segment of female truncate or slightly produced on either side of a V-shaped notch with a rounded base. Male style about twice as long as aedeagus, contracted for some distance near middle, ending in sharp point; aedeagus in lateral view slightly contracted just before enlarged blunt tip.

Holotype male, allotype female, 4 male and 8 female paratypes, San Antonio Canyon, Calif., August 4, 1938, R. I. Sailer.

15. **Stragania atra** (Baker)

Macropsis atra Baker, C. F., Psyche, 9, p. 56, 1900.

Resembling **S. ornatula** Stål but head almost as wide as pronotum, style of male sharp-pointed at apex instead of boot-shaped. Length male 4, female 4.25 mm.

Head almost as wide as pronotum; vertex short, broadly rounded, slightly longer at middle than next eyes; elytra sparsely set with setae, more than their length apart, black in color except light on basal half of clavi.

Color: Male head, pronotum and scutellum, except apex, black; elytra whitish opaque on basal inner half of clavi, embrowned on mesal margin; remainder semihyaline with appendix and apical cells infuscated; front dark brown to black, remainder of venter more or less infuscated. Female yellowish-green, scutellum ivory, elytra semihyaline; venter stramineous, tinged with green.

PLATE I

1. Lateral view of aedeagus and style of **Stragania (Penestragania) robusta** (Uhler).
1a. Plate, pygofer and pygofer hook of **Stragania (Penestragania) robusta** (Uhler).
2. Lateral view of aedeagus and style of **Stragania (Penestragania) alabamensis** (Baker).
2a. Plate, pygofer and pygofer hook of **Stragania (Penestragania) alabamensis** (Baker).
3. Lateral view of aedeagus and styles of **Stragania (Penestragania) apicalis** (Osb. and Ball).
3a. Plate, pygofer and pygofer hook of **Stragania (Penestragania) apicalis** (Osb. and Ball).
4. Lateral view of aedeagus and style of **Stragania marginata** n. sp.
5. Lateral view of aedeagus and style of **Stragania acutistylata** n. sp.
6. Lateral view of aedeagus and style of **Stragania rubra** n. sp.
7. Lateral view of aedeagus and style of **Stragania longistylata** n. sp.
8 and 8a. Lateral view of aedeagus and style of **Stragania oregonensis** n. sp.

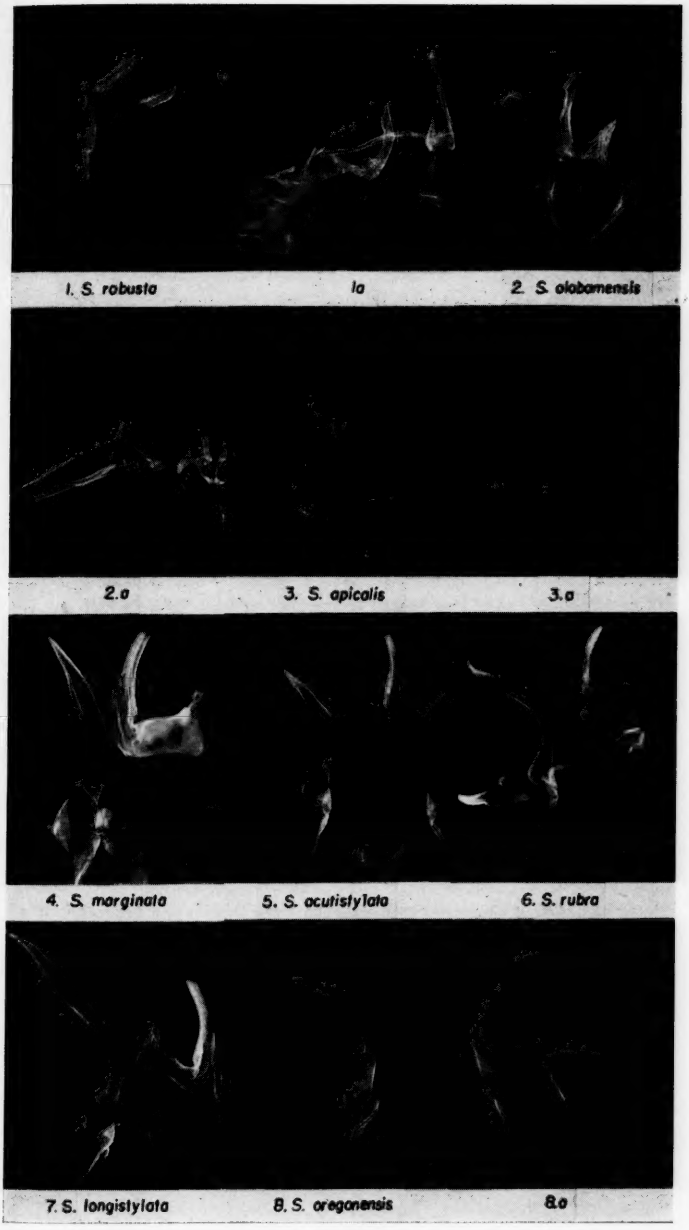
1. S. robusta
1a
2. S. alabamensis
2.a
3. S. apicalis
3.a
4. S. marginata
5. S. acutistylata
6. S. rubra
7. S. longistylata
8. S. oreganensis
8.a

PLATE I

Genitalia: Posterior margin of last ventral segment of female deeply excavated from side to side, with broad, angular tooth at middle of excavation. Male style in lateral view slightly more than twice as long as aedeagus, tapered from widened area near connection with plate to sharp apex; aedeagus in lateral view with shaft straight beyond middle bend, sides tapering to blunt apex.

Specimens have been studied from Utah and Wyoming.

16. **Stragania grandis** (Ball)

Macropsis grandis Ball, E. D., Can. Ent., p. 186, 1909.

Externally resembling **S. hyalina** but male with much more dark on dorsum and female with rectangular notch in posterior margin of last ventral segment one third as wide as segment. Length male 4.75, female 5.75 mm.

Vertex varies in shape from almost parallel-margined to much longer at middle than next eyes. Elytra of male sparsely set with very short, mostly light setae; female elytra more closely set with short setae, light ones on basal half of clavi and corium, others dark.

Colors: Male varies from broad black stripe down dorsum, bordered with light, to almost entirely without black. Female stramineous, more or less tinged with green.

Genitalia: Posterior margin of last ventral segment of female truncate, with rectangular notch, occupying more than middle third, about one third as deep as broad. Male style in lateral view slightly more than twice as long as aedeagus, enlarged at connection with plate, ventral margin converging on about outer third to sharp apex, coarsely rastrate on apical half of ventral margin except extreme tip; aedeagus in lateral view with sides almost parallel, ventral margin curving dorsally on outer third to form a rounded tip. Pygofer hook avicephaliform.

Specimens are at hand from Colorado, Arizona, Utah and Wyoming.

17. **Stragania alboscutellata** n. sp.

Resembling **S. californica** (Baker) but outer half of male style widest on outer third. Length 4.75-5.5 mm.

PLATE II

9. Lateral view of aedeagus and style of **Stragania major** n. sp.
10. Lateral view of aedeagus and style of **Stragania pruinosa** n. sp.
11. Lateral view of aedeagus and style of **Stragania bisignata** (Ball).
12. Lateral view of aedeagus and style of **Stragania rufoscutellata** n. sp.
13. Lateral view of aedeagus and style of **Stragania franciscana** (Baker).
14. Lateral view of aedeagus and style of **Stragania hyalina** n. sp.
15. Lateral view of aedeagus and style of **Stragania atra** (Baker).
16. Lateral view of aedeagus and style of **Stragania grandis** (Ball).
17. Lateral view of aedeagus and style of **Stragania alboscutellata** n. sp.
18. Lateral view of aedeagus and style of **Stragania californica** (Baker).
19. Lateral view of aedeagus and style of **Stragania magna** (Baker).
20. Lateral view of aedeagus and style of **Stragania turgida** n. sp.

9. S. major 10. pruinosa 11. S. bisignata

12. S. rufosculellata 13. S. franciscana 14. S. hyalina

15. S. atra 16. S. grandis 17. S. albosculellata

18. S. californica 19. S. magna 20. S. turgida

PLATE II

Vertex short, broadly rounded, slightly longer at middle than next eyes; elytra fairly closely set with rather short setae, about half of them black and half white.

Color: Male red, vertex, pronotum and base of scutellum brown to black, apical half or more of scutellum usually ivory, most of front often brown to black, remainder of venter stramineous; female vertex and pronotum ivory, tinged with red, scutellum lighter; elytra with band of pink or red on basal half of clavi up to first claval vein, remainder greenish-yellow semihyaline; venter stramineous, tinged with green.

Genitalia: Posterior margin of last ventral segment of female with a shallow rectangular median excavation occupying more than one third entire width. Male style long, widened at attachment to plate, contracted at middle, gradually enlarging to just before sharp apex; aedeagus in lateral view broad throughout, ventral margin curved dorsally on outer third.

Holotype male, allotype female, 9 male and 3 female paratypes, Sequoia National Park, California, August 6, 1940, R. H. Beamer. 6 male and 4 female paratypes, Yosemite National Park, California, August 1, 1940, R. H. Beamer.

18. **Stragania californica** (Baker)

Macropsis californicus Baker, C. F., Psyche, 9, p. 57, 1900.

Resembling **S. alboscutellata** but style in lateral view not contracted near middle, aedeagus more slender, with tip curved dorsally on outer fourth. Female last ventral segment "deeply emarginate" at middle on posterior margin. Length male 4.75, female 5 mm.

Vertex narrow, sides almost parallel; elytra fairly thickly set with long setae, about half of them dark and half light.

Color: Male vertex black, except hind margin ivory; pronotum black on anterior half, remainder brown; scutellum ivory, basal margin black; elytra reddish, darker near scutellum. Female "head, all below and elytra largely, pale straw color. Pronotum rufescent. A narrow area on clavus, adjoining inner angle, usually deep reddish. Elytra often more or less with reddish toward base."

Genitalia: Posterior margin of last ventral segment of female slightly excavated or truncate with shallow rectangular notch about as wide as lobe on either side; male style not much wider at point of attachment than beyond, gradually tapering to sharp apex; aedeagus in lateral view unusually long from right angle bend to apex, sides almost parallel, outer fourth bent slightly dorsally, ventral margin rounding to dorsal.

Types in United States National Museum.

19. **Stragania magna** (Baker)

Macropsis magnus Baker, C. F., Psyche, 9, p. 57, 1900.

Resembling **S. californica** (Baker) but last ventral segment of female with

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PLATE III

The female last ventral segment of the various species of Stragania.

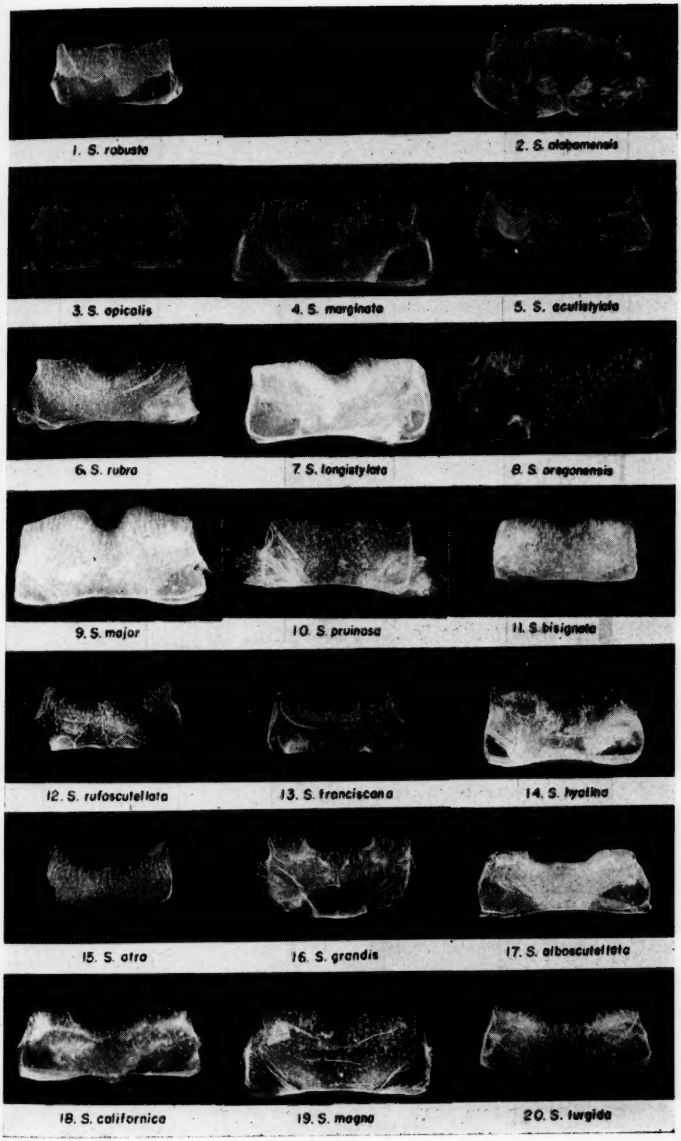
1. S. robusta
2. S. alabamensis
3. S. apicalis
4. S. marginata
5. S. acutistylata
6. S. rubra
7. S. longistylata
8. S. oregonensis
9. S. major
10. S. pruinosa
11. S. bisignata
12. S. rufoscutellata
13. S. franciscana
14. S. hyalina
15. S. atra
16. S. grandis
17. S. alboscutellata
18. S. californica
19. S. magna
20. S. turgida

PLATE III

three rounded shallow excavations, style of male not contracted near middle and aedeagus very broad in lateral view, wider at middle than at angular bend. Length male 5, female 5.5 mm.

Vertex short, broadly rounded, margins almost parallel; elytra rather sparsely set with setae, dark in color, except on basal inner halves of clavi which are light and longer and more thickly set.

Color: Male vertex, except ivory spot about ocelli, pronotum and scutellum, except ivory apex, black; slightly more than inner half of clavi red; remainder of elytra semihyaline tinged with brown; front black, remainder of venter stramineous, more or less tinged with brown. Female vertex light brown, darker next eyes; pronotum light brown, tinged with red on posterior half; scutellum dark brown on basal half, remainder ivory; slightly more than inner half of clavi red; appendix brown; remainder of elytra stramineous to semihyaline, tinged with green in fresh specimens.

Genitalia: Posterior margin of last ventral segment of female produced on inner half, with a shallow, rounded excavation at middle. Male style more than twice as wide at point of attachment as beyond, not contracted at middle in lateral view, sides converging on outer third to sharp point; aedeagus in lateral view almost one third as wide as long, widest beyond angular bend, slightly curved dorsally, ventral margin curved to meet dorsal in rounded tip.

Type female in United States National Museum, Washington, D. C.

Specimens at hand from Tia Juana, and Stinson Beach, California, the latter collected from **Ceanothus thyrsiflorus** Esch.

20. **Stragania turgida** n. sp.

Resembling **S. magna** (Baker) but female last ventral segment deeply excavated from side to side and male style contracted near middle. Length female 5.25 mm., male slightly smaller.

Vertex short, broadly rounded, in male almost parallel-margined, in female longer on middle than next eyes; elytra thickly set with short setae, on clavi white, on corium, more white than black.

Color: Male vertex, pronotum and scutellum except ivory apex, black; elytra red, appendix and apical cells fumose; female vertex, pronotum and scutellum except ivory apical two thirds, light brown; clavi with more than mesal half red, remainder greenish, corium greenish; front light brown, remainder stramineous, tinged with green.

Genitalia: Posterior margin of last ventral segment of female slightly concave with broad but shallow excavation over more than middle third. Male style about twice as wide at attachment as any other place, sharply contracted near middle, sharpened on outer third; aedeagus with shaft long, in lateral view, contracted on about outer third, then widened, tip slightly dorsally extended.

Holotype male, Santa Rosa, California, August 16, 1938, R. H. Beamer; allotype female, 7 male and 9 female paratypes, same place and date, R. I. Sailer. Swept from **Arctostaphylos manzanita** Perry.

NEW GENERA AND SPECIES OF MUSCOID FLIES[1]

H. J. REINHARD
College Station, Texas.

The present paper contains descriptions of nine new sarcophagine species, including the types of two new genera; all are North American and mainly from Texas. Types of the new species are in my collection.

Camptopsis strigosa, n. sp.

A small pallid fly like the genotype, **C. miamensis,** but more slender in build; ocellars hairlike or entirely wanting; arista long plumose on basal two-thirds; apical scutellars absent.

Male.—Front nearly equibroad from antennal base to vertex, at latter 0.30 of head width; parafrontal gray pollinose, narrower than dark median vitta; parafacial subsilvery, bare or nearly so, hardly as wide as third antennal segment; frontal rows stopping near antennal base; one pair of proclinate orbitals about as large as average frontal bristle; ocellars vestigial or absent; inner verticals long and erect; antennae subequal length of face, reddish, third segment slender, nearly three times longer than second; arista long plumose on basal two-thirds; vibrissae decussate, on oral margin; facial ridges bare; cheek about one-sixth eye height; proboscis short, stout, labella fleshy; palpi slender, yellow with tips slightly infuscated; back of head moderately bulged, rather sparsely black-haired with few pale ones intermixed on lower part.

Thorax black with reddish tinge in ground color of pleura, humeri and scutellum, notum gray pollinose, marked with three dark or brownish vittae sometimes poorly defined; dorsocentral 3,3; acrostichal 0,1; sternopleural 2 (sometimes a hairlike third below); scutellum with 2 lateral pairs, no apicals or discals but a small preapical pair sometimes present; infrascutellum recessive; prosternum finely haired at sides; propleura bare; sides of postnotum beneath calypters setose; calypters glassy white, hind lobe distinctly longer than wide.

Abdomen rather slender, slightly elongate, pale yellow in ground color with an indistinct dark median vitta above which usually expands on third segment to include hind margin; pollen on upper surface somewhat tessellated; first and second segments without median marginal bristles, third and fourth with marginal row; hypopygium pale yellow, first segment rather large and convex behind, with a row of slender hairs on apical margin, second much smaller, reddish; forceps rather short, divided apically but not divergent; penis short, terminating in a subglobular tip; fifth sternite concealed, yellow; fourth tergite beneath with numerous long black hairs on inner apical margin.

[1] Contribution No. 892, Division of Entomology, Texas Agricultural Experiment Station.

Legs reddish yellow tarsi blackish; middle tibia with one anterodorsal bristle and a few long fine hairs on inner side; hind tibia with denser vestiture of villous hairs and hind coxae with fine short hairs on posterior side; claws and pulvilli elongate.

Wings hyaline; first vein with a few setulae on middle section, third setulose nearly to small cross vein; first posterior cell open shortly before wing tip; costal spine small but distinct; epaulet pale yellow.

Length, 6-7.5 mm.

Holotype male, Babylon, L.I., N.Y., July 25, 1936 (Blanton and Borders). Paratypes: 8 males in Cornell University Collection, Lakeville, L.I., N.Y., July-September, 1921 (H. C. Huckett), Baiting Hollow and Wading River, L.I., N.Y., August 19 and 26, 1923, without collector's label.

Tejasomyia, n. gen.

A small to medium-sized species well narrowed in build, which differs from **Comasarcophaga** mainly in having three postsutural dorsocentrals; frontal rows scarcely divergent anteriorly, with only one bristle beneath antennal base.

Head wider than high, frontal profile a little longer than facial; oral axis about four-fifths antennal, latter near or just below eye middle; clypeus only slightly sunk, flattened facial ridges bearing a few small hairs next to vibrissae; latter rather stout, decussate, well above lower edge of head; epistoma gently bowed forward and slightly produced downward in oral membrane, hardly at all narrowed from clypeus; parafacial with scattered fine hairs above extending downward in an irregular row to near lower edge of eye; male with well developed outer verticals and female with two pairs of proclinate orbitals; ocellars strong, proclinate; eye bare, reaching nearly to vibrissal level; antennae moderately slender, second segment elongate and fully three-fourths length of third; arista long-haired to short plumose on basal two-fifths above, middle segment short; cheek nearly two-fifths eye height; palpi clavate, subequal length of haustellum. Thoracic chaetotaxy: acrostichal 0, 1; dorsocentral 2, 3; intraalar 2 (none near suture); supraalar 3; postalar 2; presutural 1 (outer); posthumeral 1; humeral 3; sternopleural 1, 1 (sometimes a weak intermediate bristle present); scutellum with 1 small discal and 2 strong lateral pairs, no apicals; infrascutellum not developed; prosternum and propleura bare; sides of postnotum beneath calypters sparsely haired; hind lobe of latter longer than wide. Abdomen rather narrow, ovate; first segment without median marginals and second with one pair in male (usually stout); third and fourth segments each with a marginal row; male hypopygium rather small, first segment with marginal row of good-sized bristles above. Legs moderately stout, male claws and pulvilli elongate. Wings normal in shape; first vein setulose on middle section and third almost to small cross vein; first posterior cell narrowly open far before wing tip; hind cross vein joining fourth much nearer bend than small

cross vein; last section of fifth vein two-fifths length of preceding section; costal spine strong, well over to nearly twice length of small cross vein.

Genotype: **Tejasomyia nexilis**, n. sp.

Tejasomyia nexilis, n. sp.

Male.—Front at vertex 0.32 of head width (average of four specimens), equibroad downward nearly to antennal base; parafrontals and parafacials silvery gray; frontal vitta deep reddish to brown, subequal parafrontal width; antennae red third segment usually somewhat infuscated beyond middle; arista brownish, thickened on basal fourth; palpi red; back of head somewhat bulged or convex in profile, sparsely pale-haired below middle.

Thorax black, gray pollinose, notum with the usual 3-5 dark vittae; calypters opaque, white.

Abdominal black apex of anal segment and hypopygium red, dusted with gray pollen above which shows three shifting black stripes in most views; forceps separated, each prong grooved on basal half behind, tapering to a sharp tip and gently bowed in profile; accessory plate minute, beset with fine hairs; front and hind clasper short, terminating in a simple tip; penis with a short but slender stalk, jointed near base and bearing a large anterior lobe on each side near apex, later triangular hoodlike in profile; fifth sternite reddish, lobes widely divergent with inner margin beset with thick black stubby hairs becoming longer toward apical extremity.

Legs black; middle femur with comb; hind and middle tibiae with variable villosity usually rather sparse and short and sometimes entirely wanting.

Wings hyaline with a faint uniform brownish tinge; veins including costa yellow; bend of fourth V-like, bearing a short stump or fold; epaulets black, subepaulets pale yellow.

Female.—Front at vertex 0.35 of head width in the single specimen, widening gradually downward to antennae; parafrontal wider than median vitta; antennae wholly red; abdomen about as wide as thorax, broadly truncate at tip, anal segment wholly red, genitalia concolorous the orifice suboval fringed with black hairs; hind and mid tibiae not villous, claws and pulvilli short.

Length, 7-8 mm.

Holotype male and allotype female, College Station, Texas, May 2, 1943 and May 17, 1942 (H. J. Reinhard). Paratypes: 2 males, same data as type and 1 male, Pleasanton, Texas, March 22, 1937 (C. E. Heard).

Euphyto pollinaris, n. sp.

A small, slender pale gray species closely resembling the genotype, **E. subopaca**, but with basal antennal segments and palpi reddish and abdomen wholly pollinose above.

Male.—Head quadrate in profile, gray pollinose, vibrissal axis subequal length of antennal; front gradually widening from antennae to vertex, latter 0.49 of head width; frontal vitta densely pollinose except on anterior ex-

tremity, at middle much wider than parafrontal; inner verticals erect or slightly convergent, outer pair smaller but distinct; ocellars long, proclinate and divergent; one proclinate and one reclinate orbital, set far back on parafrontal near upper edge of eye; frontal bristles rather weak, in a single row along outer margin of frontal vitta, stopping at base of antennae; face hardly receding, clypeus deeply depressed to middle, thence bowed forward, epistoma moderately narrowed, short; vibrissae barely differentiated, on oral margin; facial ridges and parafacials bare, latter subequal clypeal width; antennae reaching below middle of face, third segment black, barely longer than second; arista shorter than antenna, bare, bowed and thickened on basal three-fifths, intermediate segment slightly longer than wide; cheek one-third eye height, with minute scattered hairs on lower margin; eyes bare; haustellum rather slender, about one-half head height; palpi long, slender with tips slightly swollen; back of head somewhat bulged, densely gray pollinose and sparsely clothed with short black hairs.

Thorax and scutellum black with uniform dense pale gray pollen, notum not distinctly vittate. Chaetotaxy: humeral 2; posthumeral 1; notopleural 2; presutural 1 (outer); acrostichals not differentiated; dorsocentral 1, 3; intraalar 2 (none near suture); supraalar 1 (large); postalar 2; sternopleural 1, 1; scutellum with 1 lateral, 1 large decussate apical and 1 small discal pair; infrascutellum recessive; propleura and prosternum bare; calypters opaque, white.

Abdomen narrow, long ovate, black, wholly gray pollinose above but hind margin of last three segments appearing darker in some views; third and anal segments with a marginal row of rather short bristles; venter subshining, black; sternites exposed; hypopygium rather broad, curved beneath tip of abdomen, basal segment black with a few minute hairs near apex on hind side.

Legs black, tibiae and tarsi with a more or less distinct reddish tinge in ground color; mid tibia with two smallish bristles near middle on outer front side, hind tibiae not ciliate; fore tarsi normal; claws and pulvilli equal length of apical tarsal segment.

Wings hyaline, veins including costa pale yellow; first posterior cell closed, with short petiole reaching costa far before wing tip; bend of fourth vein obtusely angulate, without stump or fold; first vein bare, third setulose over halfway to small cross vein; last section of fifth vein one-half length of preceding; hind cross vein about midway between bend and small cross vein; costal spine vestigial.

Female.—Similar to male but the abdomen wider and more pointed apically; genitalia not adapted for piercing; claws and pulvilli small; fore tarsi stout, with apical segments noticeably flattened.

Length, 6.5 mm.

Holotype male and allotype female, College Station, Texas, April 19, 1920 (H. J. Reinhard). Partypes: 1 female same data as type and 1 female same locality, May 2, 1921 (H. J. Reinhard).

Sphenometopa violae, n. sp.

Allied to **S. tergata**, but grayer in general aspect; arista thickened on basal two-fifths; apical scutellars large and decussate; male front slightly wider, less shiny and basal segment of fore tarsi modified.

Male.—Front at vertex 0.38 of head width, a trifle narrower at base of antennae; median vitta, parafrontals, parafacials and cheeks with heavy subshiny cinereous pollen; frontal bristles rather weak, in single row near margin of vitta converging toward antennae, two bristles beneath base of latter; one reclinate and two proclinate orbitals; ocellar triangle small, bearing a pair of hairlike divaricate bristles neither distinctly proclinate nor reclinate; verticals two pairs but outer one weak; face deeply impressed, its ridges moderately divergent downward, bristled to upper third or more; parafacial narowed to width of third antennal segment on lower extremity, bearing a median row of very fine black hairs; vibrissae on oral margin, rather short and approximated; antennae reaching nearly to vibrissae, blackish basal segments short, third about five times length of second; arista black, micropubescent, middle segment short; eyes bare, large reaching to or a trifle below vibrissal level; cheek clothed with fine black hairs, about one-seventh eye height; proboscis short, stout, labella large; palpi black, subequal haustellum length, slightly thickened beyond middle; back of head clothed with short black hairs.

Thorax densely gray pollinose, lateral margin of scutellum subshiny black, notum indistinctly vittate; dorsocentral 2, 3; acrostichals, inner presutural, anterior intraalar and pteropleural not developed or vestigial; sternopleural 2; scutellum with 2 lateral and 1 slightly shorter decussate apical pair; prosternum, propleura and sides of postnotum beneath calypters bare; latter opaque white; infrascutellum not developed.

Abdomen gray pollinose but first segment thinly so, intermediate segments each with three shiny black triangular spots on apical half which are sometimes united on third to form a continuous black cross band; fourth segment polished black with uninterrupted pollinose band on basal half; second and third segments with a pair of median marginal bristles, fourth with a marginal row; genitalia rather small, retracted; inner forceps short, divided on apical two-thirds, prongs moderately divergent and each tapering to fine point; outer forceps thicker but almost as long as inner ones, narrowed apically to blunt or rounded apex; penis stalk grooved on hind side and pale membranous in front, with a subsegment arising near middle curved down and rearward over notched apex of main segment, viewed from side the region enclosed by curved process is pale membranous in texture; fifth sternite broadly emarginate on apical margin, inner angles of lobes rather pointed, sparsely fine-haired.

Legs black; fore basitarsus somewhat widened near apical third by an angular expansion of lower margin which bears a cluster of longish black hairs and a fringe of shorter ones extending along margin to apex; middle tibia with one bristle on outer front side near middle; hind tibia with a

row of rather even but short and widely spaced bristles on outer posterior edge, one near middle stouter and longer; claws and pulvilli minute.

Wings subhyaline; first vein bare, third with two or three minute hairs near base; first posterior cell narrowly open well before extreme wing tip; hind cross vein strongly oblique to fourth, joining same about one-fourth distance from bend to small cross vein; fourth vein beyond bend almost in plane of hind cross vein; costal spine vestigial, epaulets black.

Female.—Front about as wide as in male, median vitta opaque brown with blackish tinge, at middle three to four times parafrontal width; facial ridges bristled on lower three-fifths to two-thirds; third antennal segment slightly exceeding three times second; fore tarsi simple; genitalia telescopic, retracted, terminating in a blunt-tipped larvipositor; otherwise similar to male.

Length, 5-6.5 mm.

Holotype male and allotype female, College Station, Texas, June 7, 1942 (V. E. and H. J. Reinhard). Paratypes 34 males and 11 females, same locality as type, May 15-June 17, 1942-43; 1 female, Agri. Col., Miss., July 16, 1922; and 1 female, Amherst, Ohio, August 13, 1941 (H. J. Reinhard). The species is named for my wife who collected a good portion of the type series mainly from aphid-infested foliage to which the flies had been attracted by a light sprinkling of "honey-dew."

Sphenometopa planitarsis, n. sp.

Agrees closely with the preceding species but at once distinguished by the simple fore tarsi in the male sex. One female included here agrees with the two available male specimens in having second antennal segment reddish in ground color; frontal vitta pollinose but less thickly so; palpi brown, distinctly longer than haustellum; and first segment of fore tarsus ordinary, equal to combined length of the two following segments.

Length, 5.5-6 mm.

Holotype male, College Station, July 18, 1934 (H. J. Reinhard). Paratypes 1 male, same data as type and 1 female, Bexar County Texas, May 7, 1928 (H. B. Parks).

Gymnoprosopa latifasciata, n. sp.

Similar to **G. polita**, but with distinctly wider pollen bands on abdominal segments two to four; face less receding and arista thickened well beyond middle. There are also genitalic differences.

Male.—Front at vertex 0.42 of the head width (two specimens), converging slightly toward antennal base; frontal vitta pale reddish yellow, gradually widened to vertex, at middle about four times wider than parafrontal; latter subsilvery becoming darker near vertex; verticals two pairs, well developed, one reclinate and two proclinate orbitals; frontals rather weak, about five bristles in row extending from base of antennae to slightly above mid front; ocellars about as large as orbitals, proclinate; face deeply impressed, its ridges practically bare and scarcely divergent downward; vib-

rissae rather short, decussate, near oral margin; parafacial silvery, sparsely beset with minute pale hairs, nearly equal clypeal width; cheek about one-fourth eye height, concolorous with parafacial, mostly bare but with some black hairs along lower margin; antennae subequal length of face, basal segments reddish, third black, four to five times longer than second; arista blackish, bare, about equal length of third antennal segment, thickened on basal two-thirds; eye bare; proboscis moderately slender, haustellum about one-half head height; palpi yellow, slender with extreme tip slightly thickened; back of head flat, gray pollinose, sparsely clothed with short black hairs.

Thorax black, gray pollinose, with three dark dorsal vittae, middle one narrower, becoming obsolete shortly behind suture; scutellum black dusted with changeable gray pollen. Chaetotaxy: acrostichals not differentiated; dorsocentral 2, 3; intraalar 2 (middle one vestigial); supraalar 2 (none next to suture and the hindmost small); postalar 2; sternopleural 1, 1; pteropleural 1 (small); notopleural 2; humeral 2; posthumeral 1; presutural 1 (outer); scutellum with 2 lateral (the hind one large) and 1 good-sized decussate apical pair, no discals; infrascutellum recessive; calypters opaque, white; propleura and prosternum bare.

Abdomen long ovate, shining black with silvery pollen on basal two-fifths or more of last three segments, the pollinose bands sharply limited at side and not extending on venter; first segment without median marginals, second with one strong pair, last two segments each with a marginal row; genitalia small, retracted, blackish; inner forceps slender, short, divided but not divergent, viewed in profile the hind edge straight, tapering to an acute tip; outer forceps tinged with red basally, thicker, tips blunt and slightly bowed toward apex of inner pair; fifth sternite shining black, with a moderately deep U-shaped apical incision, lobes sparsely beset with short black hairs.

Legs black, fore femora silvery on outer side; claws and pulvilli minute; mid tibia with one bristle on outer front side near middle; hind tibia with two unequal bristles on outer posterior side.

Wings rather short, hardly reaching apex of abdomen; subhyaline with a slight uniform grayish tinge; fourth vein with a rectangular bend, thence strongly concave, approaching costa at an oblique angle and narrowly closing first posterior cell far before wing tip; third vein setulose over halfway to small cross vein; last section of fifth vein about two-fifths length of preceding; hind cross vein not very oblique to fourth, joining it nearly midway between small cross vein and bend; costal spine strong; epaulets blackish, subepaulets pale yellow.

Female.—Front at vertex 0.40 of the head width (one specimen); third antennal segment largely reddish, about three and one-half times length of second; arista reddish; palpi clavate; thorax and scutellum densely gray pollinose, latter with a small pair of discal bristles; pollen bands on last three abdominal segments slightly wider and more defined than in male,

the apical one extending downward on sides to venter on anal segment; genitalia small, retracted.

Length, 4-5 mm.

Holotype male and allotype female, College Station, Texas, July 17, 1917 (H. J. Reinhard). Paratype: 1 male, same data as type.

Gymnoprosopa milanoensis, n. sp.

Similar to the preceding species from which it differs mainly as follows:

Male.—Front at vertex 0.35 of the head width; face more strongly receding; parafacial with a row of black bristly hairs along inner margin and scattered smaller ones outside of main row, about two-fifths clypeal width; arista micro-pubescent, thickened on basal two-fifths; haustellum rather stout, hardly one-third head height; palpi slightly bowed near middle and thickened distally.

Thorax black, dusted with gray pollen tinged with brown on notum which shows two broad widely separated black vittae and a narrower median one visible in most angles before suture. Chaetotaxy as mentioned above.

Abdomen long ovate; basal two-fifths to half of last three segments with whitish pollen which is somewhat changeable and interrupted along median line on intermediate segments when viewed in a flat rear angle; outer genital forceps reddish yellow on broad basal part, terminating in a slender inwardly bowed fingerlike process; inner forceps blackish, divided beyond middle but not divergent, viewed in profile the hind edge sloping sharply from a prominent base to middle thence gradually narrowed to an acute simple tip.

Legs moderately bristled; front pulvilli equal length of apical tarsal segment, claws somewhat shorter.

Wings extending to or slightly beyond tip of abdomen, with an even faint brownish tinge; costal spine usually exceeding length of small cross vein.

Female.—Front at vertex 0.37 of the head width; third antennal segment black, wider than parafacial and three to four times second; abdomen more broadly ovate; genitalia retracted; claws and pulvilli minute; otherwise as in male.

Length, 4-5.5 mm.

Holotype male and allotype female, Milano, Texas, May 18 and 25, 1941, (H. J. Reinhard). Paratypes 6 males and 7 females, same data as type.

Opelodexia, n. gen.

Differs from **Opsodexia** in having the prosternum and propleura bare, vibrissae well above oral margin, calypters smaller, etc.

Head wider than high, antennal axis near or just above eye middle, a little longer than vibrissal; facial profile slightly concave and about three-fourths length of frontal, latter strongly sloped and faintly arcuate; face moderately impressed, its lateral ridges flattened, bearing one bristle

and a few small hairs on lower extremity; epistoma moderately produced downward, scarcely narrowed from clypeus or bowed forward from plane of same; front at vertex a trifle over width of ocellar triangle, much narrowed before latter and thence widening evenly downward into face; inner verticals erect; ocellars proclinate, parallel; frontal bristles in a single row, extending from base of antennae to near mid front, upper one or two pairs much reduced in size or hairlike; antennae reaching lower third of face, first segment flush, short second segment about one-half length of third; arista rather long, slightly thickened at base, proximal segments short, plumose nearly to tip; parafacials narrow, bare on lower half; haustellum short and rather stout, labella large; palpi slender with tips slightly thickened; eyes bare, large, descending to vibrissal level; cheeks about one-fifth eye height; back of head convex below but flattened above middle, sparsely clothed with black hairs. Thoracic chaetotaxy: acrostichal 1, 1; dorsocentral 2, 3; humeral 2; posthumeral 1; presutural 1 (outer); notopleural 2; intraalar 2; supraalar 3; postalar 2; sternopleural 1, 1; pteropleural 0; scutellum with 1 lateral, 1 apical (both large, divaricate) and 1 small discal pair; sides of postnotum beneath calypters haired; infrascutellum recessive; calypters rather small, hind lobes barely wider than long. Abdomen subconic, longer and narrower than thorax; last three segments with row of marginal bristles and a discal row on fourth; genitalia rather small, retracted; sternites exposed. Legs moderately long; claws and pulvilli a little shorter than apical tarsal segment. Wings normal in shape; first vein bare, third with two bristly hairs near base; first posterior cell narrowly open to closed at wing tip; bend of fourth vein broadly rounded, without stump or fold; hind cross vein straight to slightly bowed, joining fourth nearly midway between bend and small cross vein, costal spine strong, doubled.

Genotype: **Opelodexia artata,** n. sp.

Opelodexia artata, n. sp.

Male.—Front at vertex 0.18 and at base of antennae 0.29 of head width (average of three specimens); ocellar triangle small and slightly raised, ocellars as strong as average frontal; parafrontals very narrow, gray pollinose, with a row of minute hairs below middle, which extends downward on parafacials to aristal level; frontal vitta reddish to deep brown or black, broad at base of antennae but narrowed to width of anterior ocellus before triangle; antennae red basally third segment infuscated on apical half or more; arista reddish to brown; parafacials and cheeks gray pollinose, latter with sparse and rather coarse black hairs; palpi reddish.

Thorax and scutellum black, with opaque gray pollen, no defined dorsal vittae even before suture, calypters transparent, whitish with a tawny tinge.

Abdomen black, wholly gray pollinose above with a narrow dark median vitta visible in most views; venter with thinner pollen and more shiny; genitalia blackish, inner forceps short, base behind slightly keeled, nar-

rowed tips divided and a little divergent; fifth sternite largely concealed, with a broad U-shaped apical incision, lobes beset with fine black hairs.

Legs black, tibiae with reddish tinge in ground color, middle pair with one submedian small bristle on outer front side; hind tibiae with a row of four widely spaced bristles on outer posterior edge; pulvilli pale tawny.

Wings with a strong yellow tinge extending nearly to hind margin, latter grayish hyaline; venation light yellow; epaulets reddish on basal half or more.

Female.—Similar to male except for sexual differences.

Length, 6 mm.

Holotype male and allotype female, "Greenville, N. C., June 10, 1921." Paratypes: 2 males same data as type and 1 male Fairfax, S. C., June 16, 1932 (E. W. Howe).

Opelousia mitis, n. sp.

Smaller than the genotype, **O. obscura,** from which it is readily distinguished in having but one lateral scutellar bristle, wholly black antennae, palpi and genitalia. Additional differences are mentioned below.

Male.—Front at vertex 0.14 of head width, strongly narrowed before ocellar triangle thence widening rapidly downward to antennal base; frontal vitta velvety black, tapering upward and reduced to a line at triangle which is small and somewhat elevated; frontal bristles small, extending from narrowest part of front to base of antennae; ocellars proclinate, not divergent; inner verticals weak, suberect; parafrontal very narrow and blackish above, with denser shiny plumbeous pollen below middle; antennae nearly equal length of face, third segment rounded on apex, hardly one-half longer than second; arista black, moderately thickened on basal third, latter with short hairs on upper side, penultimate segment slightly longer than wide; parafacial narrow, plumbeous, with a few minute hairs above descending about to level of arista; face grayish black, not strongly impressed, lateral ridges flattened, bare except at lower extremity; vibrissae on oral margin; epistoma as wide as clypeus, and nearly in plane of same; eyes bare; cheeks grayish black, fully one-fourth eye height; proboscis short; palpi moderately long with tips thickened; back of head blackish, clothed with rather sparse black hairs.

Thorax and scutellum black, faintly subshining with rather uniform thin grayish pollen tinged with brown on notum, latter not vittate. Chaetotaxy: acrostichal 0, 1; dorsocentral 2, 3; intraalar 2; supraalar 2 (anterior one large); humeral 2; posthumeral 1; presutural 1 (outer); notopleural 2; postalar 2; sternopleural 1, 1; pteropleural 0; scutellum with 1 strong lateral, 1 decussate apical and 1 weak or hairlike discal pair; infrascutellum recessive; prosternum and propleura bare; lateral postscutellar plates setose; halteres yellow; calypters semitransparent, tawny.

Abdomen black, wholly gray pollinose with a narrow median black vitta visible in a rear view; intermediate segments each with a marginal row but the two median pairs hardly larger than hairs on second; anal

segment with a discal and marginal row; genital segments small, retracted; inner forceps slender, shining black, rather strongly divergent from near base to tips; fifth sternite black, prominent, with a broad U-shaped apical incision, lobes moderately black-haired.

Legs black tibiae tinged with yellow on apical half or more, weakly bristled; claws and pulvilli hardly equal length of apical tarsal segment.

Wings subhyaline with yellow tinge which becomes more diffused along posterior margin; fourth vein with a broad gentle bend thence almost parallel with hind margin of wing reaching costa at exact wing tip; first posterior cell narrowly open; first vein bare, third with two or three small hairs near base; hind cross vein straight, perpendicular to fourth which it joins about midway between small cross vein and bend, latter without stump or fold; epaulets black; costal spine small but distinct.

Length, 4 mm.

Holotype male, Gillam, Manitoba, Canada, August 10, 1937 (D. G. Denning), donated by Dr. F. M. Snyder.

NEW DOLICHOPODIDAE FROM MICHIGAN (DIPTERA)[1]

F. C. HARMSTON and G. F. KNOWLTON[2]
Logan, Utah.

The four species of flies here described as new were present in a collection taken by Mr. R. R. Dreisbach in Michigan, and sent to the authors for identification.

Neurigona sombrea n. sp.

Male. Length, 3 mm.; wing 3 mm. Face wide for a male of this genus, its sides nearly parallel, yet somewhat narrowed toward the middle, the silvery pollen nearly obscuring the black ground color. Front black, with thin white pollen, which is more conspicuous along the orbits and immediately above the base of antennae. Proboscis and palpi yellowish-brown, the latter with a conspicuous black bristle near the apex. Antennae yellow; third joint brownish, pointed, densely long pubescent; arista long, tapering, short pubescent, inserted in a notch at upper apical portion of third joint. Postorbital cilia wholly black.

Dorsum of thorax dull yellow, the prescutellar depression brownish; bristles of dorsum strong and prominent. The scutellum bears two strong mesial and two feeble lateral bristles. Pleurae yellow, with a darkened area just below and behind the base of wing. Abdomen blackish; the extreme posterior margins of the first three segments yellowish; venter yellowish. Hypopygium concolorous with abdomen; the inner organs prominent and of complex structure.

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[1] Contribution from the Department of Entomology, Utah Agricultural Experiment Station.

[2] Graduate Assistant and Research Associate Professor of Entomology, respectively.

Coxae and all of legs yellow, yet the extreme tips of the tarsal segments narrowly darkened. Anterior surfaces of fore and middle coxae with minute black hairs and a few black bristles at tip, posterior coxae with a prominent black bristle on outer surface. Middle and posterior femora each with a single preapical bristle. Tarsi of plain structure. Joints of fore tarsi as 20-14-11-6-5; of middle tarsi as 20-12-10-6-4; of posterior tarsi as 10-20-12-9-5. Halteres pale yellow; calypters yellow with wide black apical margin, their cilia black.

Wings grayish hyaline; third and fourth veins nearly parallel beyond the posterior cross-vein; last section of fifth vein two times the length of posterior cross-vein; anal angle not prominent, evenly tapering toward the base of wing.

Described from three males, taken in Midland County, Michigan, by R. R. Dreisbach. The holotype, male, was collected June 6, 1941; one paratype taken June 27, 1941, and the other June 27, 1941. The type to be deposited in the United States National Museum; a paratype returned to Mr. Dreisbach and one deposited in the insect collection of the Utah State Agricultural College.

Taxonomy. Neurigona sombrea n. sp. is the second species of the genus to be described from North America possessing black postorbital cilia. The other species, **nigricornis** Van Duzee, differs from **sombrea** in having black antennae and the knobs of halteres infuscated. The wholly yellow halteres, black orbital cilia and yellow antennae of **sombrea** readily distinguish it from other species occurring in North America.

Dolichopus michiganus n. sp.

Male. Length, 3.4 mm.; wing 3.2 mm. Face moderately wide, bright silvery pollinose. Front metallic green, lightly dusted with brownish pollen. Antennae black; third joint slightly longer than wide, obtusely pointed. Palpi black, with white pollen. The black orbital cilia descend to about the middle of the eye; the lower cilia are silvery-white, flattened and scale-like.

Thorax metallic, of a beautiful violet color; pleurae dull metallic, greenish-violet, lightly greyish pollinose. Abdomen metallic green, the incisures blackish; lateral portions greyish pollinose. Hypopygium blackish, of moderate size; its lamellae white with narrow black border, somewhat triangular but with rounded apical portion which is jagged and bristly.

Coxae and femora greenish-black, nearly concolorous with pleurae. Anterior coxae with delicate white hairs on anterior surface, and a few black bristles at extreme tip. Middle and hind femora each with a single preapical bristle. Middle femora with a row of delicate black cilia on lower inner edge, the length of these cilia being about one-third the width of middle femora. Hind femora with long black cilia on lower inner edge, the longest of these equaling twice the width of posterior femora. Fore and middle tibiae yellow. Posterior tibiae black and distinctly thickened on apical half, the black shading into brownish-yellow at base; on the inner surface of posterior

tibiae are many delicate blackish cilia, particularly prominent on basal half; the black bristles on outer apical half of posterior tibiae are long and conspicuous. Fore and middle tarsi blackened from tip of first joint. Posterior tarsi black; the basitarsi conspicuously thickened and bearing about fifteen coarse bristles on posterior surface. Joints of fore tarsi as 10-4-3-3-3; of middle tarsi as 15-8-6-4-4; of posterior tarsi as 12-10-8-5-4. Calypters ,their cilia and the halteres pale yellow.

Wings grayish hyaline; costa with a small elongated, knot-like enlargement at tip of first vein; last section of fourth vein bent near its middle, slightly convergent toward third vein at apex of wing; anal portion moderately prominent, evenly rounded.

Described from one male, taken in Saginaw County, Michigan, July 14, 1940, by R. R. Dreisbach. Type, male, to be deposited in United States National Museum.

Taxonomy. This species is readily distinguishable from other North American **Dolichopus** in possessing flattened, scale-like lower orbital cilia and long black cilia on lower inner surface of posterior femora. The densely bristled posterior surface of hind basitarsus offers another excellent distinguishing character.

Hercostomus flutatus n. sp.

Male. Length, 3 mm.; wing 2.8 mm. Face wide, slightly narrowed on lower portion, silvery pollinose. Front densely silvery pollinose, the ground color obscured. Orbital cilia black. Antennae black; third joint nearly twice as long as wide, short pubescent, ending in a sharp point, the lower portion gently rounded. Arista dorsal, long and tapering, short pubescent, inserted near the middle of the third joint. Palpi and proboscis yellow, their hairs and bristles black.

Dorsum of thorax black, with a dull greenish luster; scutellum with one pair of stiff mesial bristles and a pair of small lateral hair-like bristles; pleurae dull greenish-black, thickly dusted with white pollen. Abdomen metallic green, the lateral portions whitish pollinose; venter yellow. Hypopygium black, of moderate size; outer lamellae small, yellow, with jagged margins, the posterior surfaces and apical portion with brownish hairs and bristles.

Coxae yellow; anterior surfaces of fore and middle pairs clothed with black hairs and a few black bristles at tip; outer surface of posterior coxae with a strong black bristle near the middle and a small hair-like bristle near the apex. Femora and tibiae yellow; the middle and hind femora each with a single preapical bristle. First two joints of fore tarsi yellow; third and fourth joints black, laterally compressed, fringed above with short black hairs; fifth segment white. Middle and posterior tarsi infuscated from the tip of first joint. Length of fore tarsal joints as 20-15-7-6-6; of mid tarsi as 20-15-9-7-6, of posterior tarsi as 12-15-9-7-6. Halteres and calypters yellow, the latter with black cilia.

Wings grayish hyaline; fourth vein convergent toward the third nearer the middle of last section, from which point they are nearly parallel; anal angle of wing evenly rounded, moderately prominent.

Described from one male, taken in Bay County, Michigan, May 24, 1941, by R. R. Dreisbach. Type, male, to be deposited in the United States National Museum.

Taxonomy. **Hercostomus flutatus** n. sp. is the third member of the genus to be described from North America in which one or more of the fore tarsal segments are white. The three species, **flutatus**, n. sp., **dreisbachi** n. sp. and **albipodus** H. & K., are separated by characters listed in the following key:

1. Lower postorbital cilia white; fourth and fifth segments of fore tarsi white ..... **albipodus** H. & K.
   Postorbital cilia entirely black 2
2. Fifth segment of fore tarsi black on basal half, white on apical half; third joint of antennae scarcely longer than wide, rounded at tip ..... **dreisbachi** n. sp.
   Fifth segment of fore tarsi white; third joint of antennae twice as long as wide, sharply pointed ..... **flutatus** n. sp.

Hercostomus dreisbachi n. sp.

Male. Length, 3 mm.; wing 2.8 mm. Face silvery white, considerably narrowed on lower portion. Front dull, metallic green, densely silvery pollinose. Palpi pale yellow. Orbital cilia wholly black. Antennae black; third joint scarcely longer than wide, rounded at tip.

Thorax dull green, thickly dusted with white pollen; pleurae like the dorsum, except that the pollen is more dense, nearly obscuring the ground color. Abdomen metallic green, the lower lateral portions greyish pollinose. Hypopygium small, black, scarcely larger than the fifth abdominal segment; lamellae small, yellow, triangular with the apical portion pointed, the posterior surface and margins covered with yellow hairs. There are, immediately cauded to the yellow lamellae, a pair of black forked appendages.

Coxae yellow, the middle pair infuscated upon outer surface; anterior surface of fore and mid coxae with scattered, minute black hairs and a few black bristles at tip, posterior coxae with a prominent black bristle upon outer surface. Femora and tibiae yellow; middle and posterior femora each with a single preapical bristle. First and second joints of fore tarsi yellow, the latter slightly blackened at extreme tip; both joints long and stalk-like; third and fourth joints black, conspicuously flattened laterally; fifth joint black on basal half, white on apical half. Middle tarsi black from the tip of first joint. Posterior tarsi wholly black, yet the basitarsi are somewhat yellowish on extreme base. Joints of fore tarsi as 20-20-4-4-3; of middle tarsi as 24-18-10-8-4; of posterior tarsi as 10-20-8-6-5. Calypters and halteres yellow; the cilia of calypters appear brown in some lights, while in others their color is more yellowish.

Wings grayish hyaline; fourth vein convergent toward the third from near the middle of the last section, at their tips the veins are separated by a distance equal to one-half the length of posterior cross-vein; anal angle evenly rounded, moderately prominent.

Described from one male, taken in Midland County, Michigan, June 19, 1941, by R. R. Dreisbach, in whose honor the species is named.

Taxonomy. This very interesting **Hercostomus** is readily distinguishable from the other North American species in the color and form of anterior tarsi. No other described species from North America has the fifth joint of fore tarsi white with basal half of joint black. In **H. albipodus** H. & K., described from Utah, the fourth and fifth segments of fore tarsi are white, but in this species the second joint is only about one-half the length of first joint; whereas in **dreisbachi** n. sp. the first two joints of fore tarsi are of equal length. **H. flutatus** n. sp. differs from the two foregoing species in having third segment of antennae twice as long as wide, sharply pointed at tip, and the fifth segment of fore tarsi white.

THE BITE OF A LACEBUG, CORYTHUCHA CYDONIAE (Fitch)

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The lacebugs (Tingidae) comprise a numerous and well-known family of Hemiptera, easily recognized in most genera by the delicate lacelike effect of the forewings and the lateral expansions of the pronotum. Although all members of the family are plant feeders, I have heard, directly and indirectly, of instances in which people have believed themselves bitten by one of these insects. The latest report received was from W. E. Hoffman, who states that he was bitten by a lacebug on May 12, 1944, while visiting at Asheville, N. C. On July 24, 1944, it was my own fortune to experience the bite of a specimen which I have identified as **Corythucha cydoniae** (Fitch), a form common on various species of the Rosaceae, particularly quince, cotoneaster, **Amelanchier**, and **Crataegus**.

While standing in the aisle of a crowded Washington bus, I felt a pricking sensation accompanied by an itching on the upper surface of my forearm. Resisting the inclination to scratch, I looked for the cause and discovered the lacebug resting quietly on the surface, obviously engaged in piercing the skin with its stylets. About a minute later it ceased biting and proceeded to crawl among the hairs, coming to rest a half inch away. Again it pierced the skin, causing a pronounced pricking sensation and adding to the already annoying itch. This procedure was repeated four times in the following quarter hour. At no time did the insect remain in what would normally be a feeding position more than 3 minutes.

On leaving the bus, I disposed of the lacebug and observed that the area of approximately 1 square inch over which it had crawled was somewhat reddened and itching. After scratching the spot to my satisfaction I proceeded homeward. One hour later the area was still somewhat redder than the surrounding portion of the tanned forearm. After 3 hours only six small reddish spots were to be seen, each the site of an observed bite. The following morning no evidence of the bites remained.

It has long been common knowledge that many hemipterons will attempt, for some reason as yet not altogether explained, to thrust their stylets into any surface upon which they alight; however, a careful survey of the literature has uncovered no evidence that anything has previously been published showing lacebugs to be capable of producing the type of annoyance here recorded.

TWO NEW RACES OF BUTTERFLIES

DON B. STALLINGS and DR. J. R. TURNER*
Caldwell, Kans.

Euphydryas anicia bakeri, new race.

For the time being we place this as a race of **anicia** as its general appearance and genitalic characters seem to be closest to this species.

This race is close to race **hopfingeri** (Gunder), but is slightly larger. The upper surfaces of both sexes of **bakeri** have even more extended white areas than **hopfingeri** and the black markings are thicker. The marginal red band on both wings is generally narrower. The white areas in **bakeri** appear to be truly white, while the corresponding color in **hopfingeri** appears yellowish. This may be due in part to the increased white area in **bakeri** (and hence a corresponding decrease of the red). The red in **bakeri** does not have the orange cast that is found in **hopfingeri**. On the undersurfaces this race varies from **hopfingeri** in the same manner as the upper surfaces, i.e. increased white area and heavier black markings.

Holotype: Male. Expanse 42 mm. Cave Creek, Durkee, Oregon. 4-27-41. Elevation 2640'.

Allotype: Female. Expanse 48 mm. Cave Creek, Durkee, Oregon. 4-29-41. Elevation 2640'.

Paratypes: 27 males, 5 females. Same location, collected during May of 1940; April, May and June of 1941 and June of 1943.

Collected by Mr. and Mrs. J. H. Baker, in whose honor we name this race. Holotype and allotype will be placed in the United States National Museum. Paratypes will be placed in various museums and private collections.

Euphydryas anicia effi, new race.

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* In the armed services.

From general appearance and genitalic examination we place this as a race of **anicia.**

This race is also close to **hopfingeri** but is smaller. The upper surfaces of both sexes differ from **hopfingeri** and **bakeri** in the development of the black which is much more prominent than in either of the other two races. The red marginal band is narrower than in **bakeri.** The white areas (which have a slight yellowish cast) are about the same as in **bakeri.** This is accomplished at the expense of the red areas. The sub-mesal row of red spots across the hind wings is heavily enclosed with black and in many of the females these red spots are pupilled with black. Under surfaces very similar to **bakeri.**

Holotype: Male. Expanse 34 mm. Corral Creek, Ketchum, Idaho. 7-12-44. Elevation 6200′ to 7500′.

Allotype: Female. Expanse 42 mm. Corral Creek, Ketchum, Idaho. 7-12-44. Elevation 6200′ to 7500′.

Paratypes: 48 males and 52 females, Corral Creek and Proctor Mt., Ketchum, Idaho. Collected during July of 1944.

Collected by Mr. and Mrs. Donald Eff, in whose honor we name this race. Holotype and allotype will be placed in the United States National Museum. Paratypes will be placed in various museums and private collections.

A NEW SPECIES OF DIKRANEURA FROM ARIZONA (Homoptera-Cicadellidae)

R. H. BEAMER
Lawrence, Kans.

Dikraneura curiosa, n. sp.

Resembling **D. kunzei** (Gill.) but vertex of male almost as long as distance between eyes and aedeagus with two pairs of processes, each of which has a sharp tooth. Length 2.5 mm.

Head cone-shaped, with quite a blunt apex. General color of head, pronotum and scutellum ivory, tinged with yellow. Vertex practically unmarked, pronotum semihyaline on basal two thirds and scutellum with a semblance of two darker median parallel lines connected apically by a U-shaped mark. Elytra almost opaque, bluish-green with a small black spot at apex of clavus and tinged with yellow in region of costal plaque. Front dark, legs lighter.

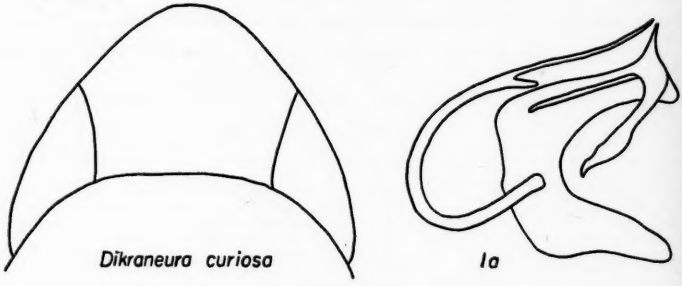
Internal genitalia: Pygofer narrowed apically into a heavy, blunt, blackened point. Aedeagus in dorso-ventral view with an exceptionally broad base with four diverging prongs. In lateral view shaft twice as broad at base as near apex, bent caudally at right angles just before middle with two pairs of processes, one pair arising ventrally at bend in shaft, the other pair arising laterally near base of shaft. The first pair parallels shaft to its apex where

the processes enlarge more than twice their width, send off a short, sharp spine ventrally, bend dorsally and then narrow to two thirds apical diameter, curve backward to end near base of shaft. About apical half of this latter, bent portion is again enlarged to end in quite narrow, clawlike apex. The other pair of processes, arising on the sides of the shaft near the base, proceeds in a large curve back of base, bending ventrally to parallel the shaft to its tip. Each process divides near beginning of first pair of processes into a short, stout outer part and a long, narrow inner one.

Holotype ♂ and 3 paratype ♂s, Santa Rita Mts., Ariz., July 17, 1932, R. H. Beamer, and 1 paratype ♂, Patagonia, Ariz., August 21, 1935, R. H. Beamer.

Doctor Melvin Griffith dissected the first specimens of this species during his study of the genus Alconeura and attached a label with the following apt remark: "Curious involved aedeagus."

Types in the Snow Entomological Collections, University of Kansas, Lawrence, Kansas.



TWO INTERESTING INSECT SPECIES

GEO. A. DEAN
Department of Entomology, Kansas State College, Manhattan, Kans.

The Department of Entomology received by mail from Southeastern Kansas Dec. 28, 1944, one adult soldier fly and two puparia of **Hermetia illucens** Linn. and two larvae of **Dermestes lardarius** Linn., which had been taken in a milk station. The adult fly was taken on the window and the puparia and larvae in the accumulations in the cracks of the floor where leaking milk cans had been stored and milk had run out on the floor. No doubt the souring milk and other materials in the cracks of the floor produced a favorable odor to attract larder beetles and soldier flies to places for depositing eggs. Probably some of the flooring was somewhat decayed, and thus with the souring milk getting into it, formed a favorable breeding or feeding place for the larvae.

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